DOCUMENT RESUME

ED 302 208 IR 013 567

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TITLE Connected Education: The First Two Years.
PUB DATE Nov 86
NOTE 14p.; For the complete journal, see IR 013 556.
PUB TYPE Speeches/Conference Papers (150) -- Journal Articles (080)
JOURNAL CIT Learning Tomorrow. Journal of the Apple Education Advisory Council; n4 p205-218 Win 1988

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer System Design; *Distance Education; *Electronic Mail; Electronic Publishing; Graduate Study; Higher Education; *International Programs; *Online Systems; *Teleconferencing; Undergraduate Study
IDENTIFIERS Media Education; *New School for Social Research NY; *Polytechnic Institute of New York

ABSTRACT

This paper describes Connect Ed, a program offering graduate and undergraduate courses for credit via computer conferencing. It is noted that these courses are offered in conjunction with the Masters Degree in Media Studies at the New School for Social Research and the Polytechnic Institute, both in New York City. A progress report on Connect Ed's first two years includes discussions of its accomplishments and problems as well as projections for future growth. The various aspects of the computer program are described, including the Connect Ed Library with hundreds of papers online, and the Connect Ed Cafe for social conversation. Particular attention is focused on the international character of the program, with 15% of the students coming from Japan, Singapore, England, Canada, South America, and Central America. (EW)

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Connected Education: The First Two Years

Paul Levinson

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Connected Education is interested in the informational basis of education, and the ways in which technologies that move information rather than people can facilitate quality education in global and local communities.

Since the fall of 1985, Connected Education has been offering courses entirely via computer teleconferencing for graduate and undergraduate credit in conjunction with the M.A. in Media Studies program at the New School for Social Research and Polytechnic University in New York City. Some 200 people from Japan, Singapore, the Middle East, England, Panama, Colombia, and across the United States and Canada have taken courses taught by faculty all around the world on such topics as applications in telecommunications, telelaw, electronic publishing, desktop publishing, ethics in the technological world, issues in international telecommunications, artificial intelligence and real life, and fiction writing.

The heart of the program is asynchronous computer conferencing on the Electronic Information Exchange System (EIES), in which faculty and students enter and read comments, complete papers, and carry on discussions, day or night at times of their own choosing. We've found that this ability to communicate at one's own convenience—totally via personal computer and modem located in the home or place of business—greatly enriches the intellectual quality of the exchanges. Our campus also consists of a Connect Ed Library, with hundreds of papers available on-line 24 hours a day, and a Connect Ed Cafe for electronic social exchanges.

This paper is a progress report on Connected Education's first two years—with a discussion of our accomplishments, our problems, and our projections for future growth. We have found the following questions and issues pertinent to the development of an on-line educational program: What degree of training and prior comfort with computers and computer telecommunications do students require before commencing their on-line studies? What subjects seem most appropriate for the text-oriented environment of computer conferencing? In what ways can on-line environments provide social interactions that play important roles in traditional in-person campus life? To what degree should research and assignments in course work entail off-line library readings in addition to on-line data bases? Can an on-line student with sufficient disk storage make do without paper? What possibilities for international cross-pollenization are opened up via on-line education? Several of these questions will be considered in detail in this paper.

The level of student satisfaction and output (in terms of conference comments, final papers, and reports) in the Connect Ed program has been very high. To what extent is this the result of a self-selected elite serving as pioneers in on-line education, and to what extent are the satisfactions of on-line work transferrable to the population at large? Facility with written communication seems both necessary for and stimulated by participation in on-line education. What impact will the introduction of voice-print technologies have on this literacy focus?

An area of special gratification to Connect Ed has been the participation in our program of a student totally deaf since birth. The student's prior educational experience had been either in sign language classes for the deaf, segregated from the general population, or in general-population classes in which participation took place via tape-recorded lectures that were later transcribed. The computer conferencing environment allows this person to interact in a full and satisfying way with faculty and students. For the first time in his life, his deafness is not an educational handicap. What further opportunities does on-line education hold for handicapped people?

The Connect Ed teacher must be (a) a gifted teacher in the traditional in-person classroom, and (b) someone with an affinity for computer conferencing and on-line work. The introduction of talking motion pictures put many stars of the silent screen out of work—their voices were not compatible with their images. How many of today's in-person teachers have the makings of effective on-line instructors? Will the on-line environment select a new type of teacher—one willing to sign on every day and enter messages frequently, but from the comfort of home and without the rigors of commuting or the need to live near or on a campus?

Connect Ed students can now matriculate and pursue the M.A. in Media Studies (awarded by the New School) almost entirely via on-line work. Matriculants come from as far away as Bogotá, Colombia, and from both coasts of the United States. A next logical step is the development of an on-line doctoral program, which will allow students from any place in the world to study with the best minds in the world. Such a doctoral program is now being developed by Connected Education in conjunction with the Polytechnic University of New York.

Connect Ed and the International Community

Our program rests on the recognition that many people all over the earth do not live in physical proximity to the education they might want to pursue. Our Electronic Campus—a specially tailored system of computer conferencing located on the Electronic Information Exchange System (EIES) of the New Jersey Institute of Technology—allows participants to access courses, read and write comments, peruse on-line papers, relax in our Connect Ed Cafe (a special computer conference), and complete course assignments anytime—24 hours a day, seven days a week—from any place in the world with a personal computer, a modem, and access to a telephone.

Approximately 15 percent of our students have studied with us from Japan, Singapore, England, Canada, the Middle East, and South and Central America. In fact, students from Bogotá, Colombia, and Ottawa, Canada, have already matriculated for the M.A. in Media Studies totally by computer conferencing. They will complete their degree requirements within a few years, without ever having to leave their homes or places of business.

Last summer we offered a special Issues in International Telecommunications course team-taught by faculty located in Washington, D.C., New York City, and England. Students from across the United States and Canada and from Tokyo and England discussed such issues as special data-packet rates for educational uses and satellite rights in space, as well as ways that the Third World can get on-line most efficiently. More than 400 comments were generated by faculty and students in this two-month masters-level course, and we intend to make it a permanent offering every summer (June–July) in our program.

The asynchronous nature of computer conferencing is ideally suited to education across the globe. A faculty member in San Diego may start a course with an introductory comment or two. Students in California and South America will likely read the comment within a few hours, and enter responses and further commentary of their own. Far Eastern participants will next read and add to the growing commentary. Within a few more hours, people on the East Coast of the Western Hemisphere will be accessing the conference, and the cycle continues throughout the course. Since people are accessing the course at times of their own choosing, the level of participation and commentary is far richer than that often obtained in conventional in-person seminars. People participating at their best make for memorable educational experiences. Our students tell us they benefit far more from on-line seminars than from in-person classes.

The capacity to record or "download" on-line material for scrutiny and response off-line allows people to participate fully in the program with le than perfect writing facility in English. Further, although the New Schoo requires some ability to write in English for pursuit of its degrees, we are now in the process of arranging for translation assistance where needed.

Research and completion of assignments is greatly facilitated by our Connected Education Library, containing hundreds of papers on-line abo various topics relevant to our courses. Problems of obtaining books by al international mail vanish when readings are all available on-line 24 hour day.

Among the most rewarding aspects of our program is the creation of friendships and business relationships among participants from various parts of the world who met on-line in our program. The problems of our world require nothing less than the full use of talents and intelligences and perspectives located all over the globe, and we will continue to do our small part to make this world community a reality.

The Connect Ed Campus: Motivation, Philosophy, and Design

The Connect Ed Campus on EIES is a specially designed or tailored subsystem of the interlocking conferences, notebooks, and group-defined commands. The campus has served hundreds of students registering for some 20 courses leading to an M.A. in Media Studies granted by the New School for Social Research in New York City. Connect Ed has also offered courses for the Polytechnic University of New York. Typical students include working professionals and teachers, as well as graduate and undergraduate students.

The purpose of the campus is to make the powerful system of EIES easy to use by people with varieties of computer experience (sometimes literally none, but usually at least a little) and varieties of hardware and software. Our ideal—to which we've held fast—is that any model computer with telecommunications hardware and software can be used effectively in our program. Typical computers range from popular Apple and Macintosh and IBM models to older, more esoteric CP/M machines. Our philosophy and approach has been to tailor the on-line environment so that drastically varying off-line systems—ranging from $300 Radio Shack laptops to PC ATs selling for thousands of dollars—can participate on a more or less equivalent basis with no necessary addition of external software. General startup time for people with little or no on-line experience has been less than a week for effective participation (construed as an ability to read and write course material in conferences).

The campus consists of three fundamental parts: a help system with varying degrees of explanation; conferences in which courses are actually conducted; and conferences and notebooks in which other campus activities take place (for example, Connect Ed Library with hundreds of on-line papers or Connect Ed Cafe for social conversation).

The Help System

The texts for our help system (usually 30 to 100 lines of explanation about a particular EIES feature or process) are stored in an on-line notebook, accessible to everyone on campus via standard notebook reading procedures. We also distribute a Connect Ed Handbook containing printed (and reformatted for better appearance) copies of all the notebook pages. But the most frequent means of student access in the help system is via a series of defined commands. Students are given their first glimpse of these commands via a basic menu system delivered to them at sign-on (which can be removed from sign-on delivery via a single command). This menu, for example, indicates that a command called "+write" will deliver a page of information on how to enter material in EIES conferences or send messages. The "+advanced" command leads to a submenu of more sophisticated help explanations, including how to upload and download or search for earlier comments in conferences.

A superb EIES feature allows organizers of groups to define commands for members of the group. A group-defined command—such as "+write"—is keyed to retrieve a given page or pages in the help notebook. Thus, a student typing "+write" is really instructing EIES to display, say, pages 6 and 7 in the notebook where the text is permanently stored. In this way, Connect Ed has utilized a powerful EIES feature to make the system easier to learn and master.

As our campus grew, we became aware of the need for expansion of our help system in response to newly perceived student needs. For example, many of our students enjoy real-time, synchronous on-line chatting, so we created a new command, "+realtime," which delivers two pages of explanation and advice about real-time conversing. This command was duly placed in the advanced menu. We are currently writing a "+longtext" command that will give students pointers on placement of long documents such as reports and papers in conferences.

Access to Courses

The purpose of the help system is to enable students to participate as quickly and fully as possible in their courses—which of course are the heart of any educational program. The "innate" EIES commands for accessing of conferences are, like some of EIES's own help explanations, a bit difficult for students to quickly master and internalize. For example, a student can access a conference titled Artificial Intelligence and Real Life via EIES "raw" commands by typing "++2, Artificial Intelligence and Real Life" at any prompt. However, a single misspelling invalidates the command. An alternative EIES command accesses the conference via "++2" (the conference number). But numbers have no intrinsic connection to the titles and subjects of courses, and may be easily forgotten or transposed. So we perceived the need for an easier way of accessing conferences.

Our solution again involved the group-defined command feature. We define commands that have intrinsic meaning to the course subject or title. When students type "+ai" for Artificial Intelligence and Real Life, for example, they are actually calling up EIES' "++2, Artificial Intelligence and Real Life" command. The upshot is that the students get the power of EIES in an easy-to-use package.

A key concern on any campus is that only those students registered for a course have access. The definition of commands for our entire on-line group in no way enters the entire group into the conference. Rather, by typing the defined command, the student is in effect requesting access to a given conference. If he or she is not a member of that conference (not registered for the course), EIES gives a polite on-line notice to that effect.

All course access commands are displayed at sign-on via a campus "map" that is automatically delivered along with the basic menu mentioned above. The campus listings can also be displayed by typing "+campus" at any prompt.

Many of our courses are repeated on a regular basis. The definition of a new group command with the same name as an earlier command automatically replaces the earlier one. Thus, the "+ai" command defined to access conference 2000 will replace the "+ai" defined last year to access conference 1500. On occasion, we define new commands to access older conferences. We render them accessible only via the raw EIES command because few of our students need to access them.

We occasionally make use of notebooks rather than conferences when we conduct classes in which group authorship of reports and other notebook features are important. Commands for accessing notebooks work the same way as commands for accessing conferences, and we use the same group-defined commands for these notebooks.

Other Activities

Our Connect Ed Library is probably the most important intellectual part of our campus other than our courses proper. A "+library" command, listed on the campus map displayed at sign-on, produces a list of library holdings. (The list itself also is stored as text in a notebook accessible to all.) The list consists of a series of defined commands keyed to access the text of papers, reports, documents, and the like stored in an accessible notebook. For example, by typing "+marshall," one would get my paper "Marshall McLuhan and Computer Conferencing"; typing "+mod" would deliver Andrew Feenberg's paper on "Moderating an Educational Teleconference."

The papers themselves are at first entered into our library via the special "+read" feature, which among other things gives the enterer of the paper a notice each time the paper is read. Thus, our Connect Ed librarian can tally how many times given papers are read, and by whom. Our library is currently available at no cost to our students and others to whom we have given campus access. In the future, however, we may charge a fee to nonstudents for accessing library papers, and in turn be able to pay a royalty to authors.

In addition to papers and reports, summaries of in-person conference proceedings and gateways to other collections of papers on EIES are featured in our library. All are accessible via simple thematically relevant defined commands.

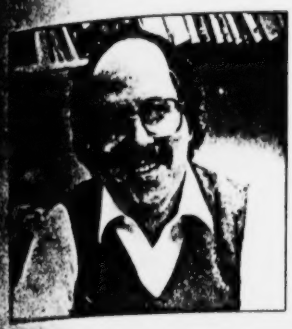
Material on academic standards, course requirements and offerings, and Connect Ed copyright policies (which hold that all materials are presumed copyrighted by the author, whether faculty or student) are stored in notebook pages readily accessible via our group-defined commands.

Our campus also includes the Connect Ed Cafe, accessible via "+cafe." This is a quite popular "hang-out" and site for social conversation. Other features such as an address book (student and faculty names, EIES addresses), job posting board, and the like complete the ambience of our campus.

Again, our campus is constantly undergoing revision and expansion. A new command, "+speak," will give students all over the world access to the in-person speaking schedules of our eminent faculty. Using this feature, students can make arrangements to see a faculty member who happens to be speaking in their area.

Summary

Connect Ed has used the potent features of EIES to make the system ev
more potent, for ease of use is an important criterion of potency. The k
the success of our campus is not any one feature—such as defined
commands for accessing conferences or the Connect Ed Library—but t
interaction of all the defined commands and features so that conferenc
library papers and help features are all readily accessible via compatibl
similar commands. This interlocking and interacting series of systems i
fact our Connect Ed campus.



Paul Levinson

Paul Levinson is founder and president of Connected Education, Inc., a not-for-profit corporation that offers on-line courses for graduate and undergraduate credit in conjunction with the New School for Social Research, and organizes computer conferences for a wide range of business, professional, and academic groups. He is associate professor of communications at Fairleigh Dickinson University, on the faculty of the Graduate Media Studies Program at the New School, and on the faculty of the Western Behavioral Sciences Institute.

Mr. Levinson is the author of Mind at Large: Knowing in the Technological Age *(Greenwich, CT: JAI, 1987), and the editor of* In Pursuit of Truth: Essays on the Philosophy of Karl Popper *(Atlantic Highlands, NJ: Humanities, 1982). He has published nearly 50 articles on the philosophy and history of technology. He holds a Ph.D. in Media Theory from New York University.*

In 1987–88 Mr. Levinson is visiting professor at Polytechnic University's Philosophy and Technologies Studies Center, where he is developing an on-line Ph.D. program in Philosophy of Technology. The first volume of Electronic Chronicles: A Compendium of the Connected Education On-Line Intellectual Community *(edited by Paul Levinson) will be published by JAI Press in early 1988.*